

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region I - EPA New England

DATE: May 4, 2010

SUBJ: First Light Power Resources, Inc., Mt. Tom Generating Station
NPDES Permit No. MA0005339
NPDES Compliance Inspection Conducted 4/15/10

FROM: George W. Harding, P.E.
Water Technical Unit

TO: Inspection File

I. Facility Information

A. Facility Name: First Light Power Resources, Inc.
Mt. Tom Generating Station

B. Facility Location: 200 Northampton Street
Holyoke, MA 01040

C. Facility Contacts: John S. Murray, Station Manager
Richard J. Merchant, Station Services Manager

D. Contact Mailing Address: 200 Northampton Street
Holyoke, MA 01040

E. Permit #: MA0005339

II. Background Information

A. Date of inspection: April 15, 2010

B. Weather Conditions: Sunny, upper 50s

C. US EPA Representative(s): George Harding

III Purpose of Inspection

Targeted CEI. No record of any NPDES inspections of the facility by EPA, and had significant TSS violations at Outfall 004.

IV Facility Description

Mt. Tom Generating Station is a 146 MW coal-fired steam electric generating facility located on the banks of the Connecticut River. The plant uses the river as a source of once-through cooling water. Discharges from the plant are regulated by NPDES Permit No. MA0005339. The permit was issued in September 1992, and is currently being administratively continued until the permit is reissued. The permit authorizes discharges from 11 outfalls, including non-contact cooling water, screen wash water, bottom ash sluice water, fly ash transport water, treated chemical cleaning and demineralization regeneration wastewater, and storm water runoff.

V. Inspection Observations

The plant was offline at the time of the inspection. According to Mr. Merchant, the electric demand during the spring is lower than during the winter and summer, and could be met at lower cost by other plants fired with natural gas.

Outfall 001 is the main cooling water discharge. Cooling water is pumped from the Connecticut River through the condensers and discharged back to the river. The cooling water stream is intermittently dosed with chlorine and a bromine compound to prevent fouling. Otherwise the only pollutant added to the flow is heat. Outfall 001 is normally not operated during a shutdown. An entrainment study at the plant's intake structure is being conducted in conjunction with reissuance of the plant's permit. Cooling water pumps are operated when observations are being taken. The pumps were not in operation during the inspection, so there was no discharge from the outfall.

Outfall 002 discharges treated process wastewater from the plant. These wastewaters include deionization regeneration water, chemical cleaning, furnace wash water, floor drains, and if necessary coal pile runoff. (Coal pile runoff is contained in a lined basin. Under typical operations it evaporates; if excessive amounts of runoff accumulate it can be pumped to the treatment system). Wastewater is discharged to either the "Special Basin" (Photo 1), a 2.5 MG lined lagoon, or a smaller equalization tank. The wastewater is pumped to a treatment system consisting of two mixing tanks, a flocculation tank, an inclined-plate lamella settler, and a neutralization tank. Sodium hydroxide is added to the mixing tanks to raise the pH to >10, which precipitates metals in the wastewater. The wastewater is gently stirred in the flocculation tank to promote formation of a metal floc. Anionic polymers are added to promote floc formation. The metal floc settles out in the lamella settler. The solids are dewatered and after testing hauled to a landfill. The wastewater continues to a neutralization tank where sulfuric acid is added to reduce the pH to around 7. The wastewater is then discharged to the Sedimentation Basin (Photo 2), a 4.5 MG lined lagoon, for polishing prior to discharge (Photo). According to Mr. Merchant no appreciable solids have accumulated in the lagoon, and the facility has never had to clean it out. Because the generators were off-line at the time of the inspection there was no discharge from Outfall 002. The treatment system appeared to be in good condition and well maintained. pH testing is done on site. The meter is calibrated daily. All pH standards were within their expiration dates. All other chemical analysis is done by an off-site company owned lab.

Outfall 003 is a stormwater discharge from a grassy swale located between the generators and the Sedimentation basin. The area was completely vegetated and showed no signs of any erosion. According to Mr. Merchant discharges occur rarely.

Outfall 005 is the return flow from a traveling screen wash. Incoming cooling water is run through the screens to prevent large solids and aquatic life from flowing into the condensers. The screens are backwashed to remove any accumulated solids and return them to the river. This system was not in operation at the time of the inspection.

Outfall 006 (Photo 6) is the discharge from a decorative reflecting pond near the entrance to the plant. It is fed by runoff from the plant entrance road, overflow from a plant service water tank, and pump seal water. The discharge flows through a wooded area toward the river. During dry weather periods the flow seeps into the ground and is not directly discharged. The pond supports a population of fish. There was a small discharge at the time of the inspection. The water was clear and free from solids or floatables.

Outfall 007 (Photo 5) receives stormwater from the rail area. Flow goes into a small basin with an oil/water separator outlet structure. It discharges into a culvert that brings storm drainage from US Route 5 to the river. There was no discharge at the time of the inspection. No sheen was visible on the standing water in the basin.

Outfalls 8 and 9 discharge treated bottom ash transport water. The pH of the incoming wastewater is adjusted (Photo 3), and the flow is discharged to a lined lagoon where the solids settle out. At the time of the inspection the lagoon was being drained down for inspection, and accumulated ash was being removed (Photo 4). According to Mr. Merchant this is done every year or two. The ash is sold for making decorative concrete.

Outfalls 10 and 11 were used to discharge fly ash transport water. Previously the transport water was pumped to lagoons which discharged through these outfalls. Both were abandoned a number of years ago, but remain in the permit. No flow is pumped to the area, and the lagoons are now a forested area. The outfall structures have been sealed, with no possibility of a discharge.

Outfall 004 discharges storm water from an area to the north of the generating unit. As with the other stormwater discharges (Outfalls 003, 004, and 007), the facility's NPDES permit included limits on total suspended solids (TSS) of 30 mg/ monthly average, 100 mg/l maximum day. These limits were established based on best professional judgment. In late 2008 through mid 2009 the facility conducted construction operations in the area tributary to this outfall, including installation of a new septic system, removal of an old oil tank, and construction of new air pollution removal equipment. Stormwater controls such as silt fences and hay bales were installed; but during heavy rains in October 2008 severe violations of the permit occurred. The facility notified EPA of these violations, and based on the recommendations of its engineer added additional storm water controls, such as covering disturbed areas with filter fabric and stone and adding additional layers of sit fence and hay bales along the length of the drainage swale (Photos 7, 10 & 11). Despite these additional measures the violations continued during heavy rains through May 2009, when the facility diverted all flow to an adjacent gravel parking area where it is allowed to evaporate (Photos 8 & 9). The facility attributes the violations in large part to the presence of fine clay soils in the construction area. At the time of the inspection accumulations of fine particles were observed in the drainage swale, behind silt fences, and in the evaporation area. No visible accumulation of sediment was observed in the river (Photo 12).

Plant records were spot checked. Comparison of recent DMRs with the lab reports showed no discrepancies. The SPCC Plan was updated and PE stamped in November 2008.

Photos

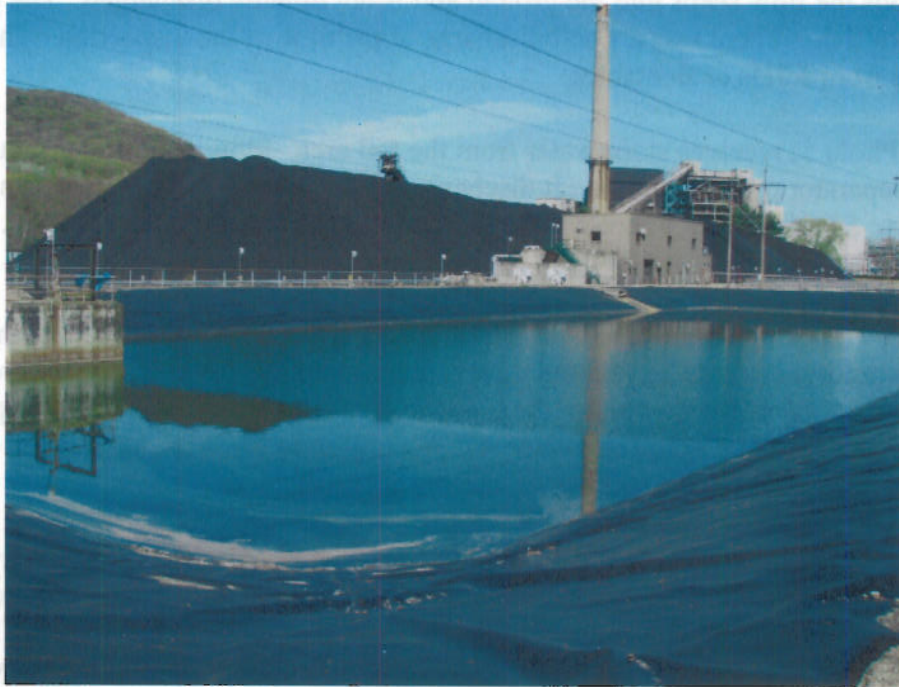


Photo 1 – View across Special Basin toward Treatment Building



Photo 2 – View of outlet from Sedimentation Basin



Photo 3 – pH adjustment system at Bottom Ash Lagoon



Photo 4 – Ash being removed from Bottom Ash Lagoon



Photo 5 – SW Basin and outlet at Outfall 007



Photo 6 – Outlet to Reflecting Pond, Outfall 006



Photo 7 – Drainage Swale at Outfall 004 showing some erosion control measures



Photo 8 – Evaporation area – 004 flows are diverted here to prevent discharge to the river



Photo 9 – Another view of the evaporation area



Photo 10 – Rock filter added to drainage swale at Outfall 004



Photo 11 - Rock filter and baffle structure added to drainage swale at Outfall 004



Photo 12 – Outfall 004

